OPTIONAL CONTINUOUS BELT FILTER PRESS FOR EXCESSIVE SLURRY WATER

126

S,F,CP

P3

FT

RECYCLABLE DEWATERED SLURRY SOLIDS 95% CEMENT 5% SAND -100 MESH

OPTIONAL SCREEN TOWER

SAND

ROCK

124

STOCK PILE CONVEYER

CS

120 OPTIONAL HYDROCYCLONE

112

DENSITY CELL

116

CONCRETE RECYCLE MACHINE

S

114

S,F

118

RC

108

SLURRY VESSEL

RECLAIMED CON-MIX +100 MESH

122

S,CS

P1

CS,F

106

102

RETURN CONCRETE

100

OPTIONAL CYCLIC FILTER PRESS FOR EXCESSIVE SLURRY WATER

128

P3

FT

S

130

D,FT,F

P2

CP DRAINAGE CONTAINMENT POND

BATCH PLANT

104

F,S,CP

102

TO JOB

FIG. 1

204

208

206

202

200

LS

MC

CONTROL
SYSTEM
210

FIG. 2

Agitator Control Process

Start Agitator Motor — 302

Monitor Load on the Agitator Motor — 304

Set Agitation Duration Based on the Load on the Agitator Motor — 306

Is Load Excessive? — 308

YES

Signal Overload Condition — 310

NO

Agitation Duration Expired? — 312

YES / NO

Stop Agitator Motor — 314

Next Agitation Cycle? — 316
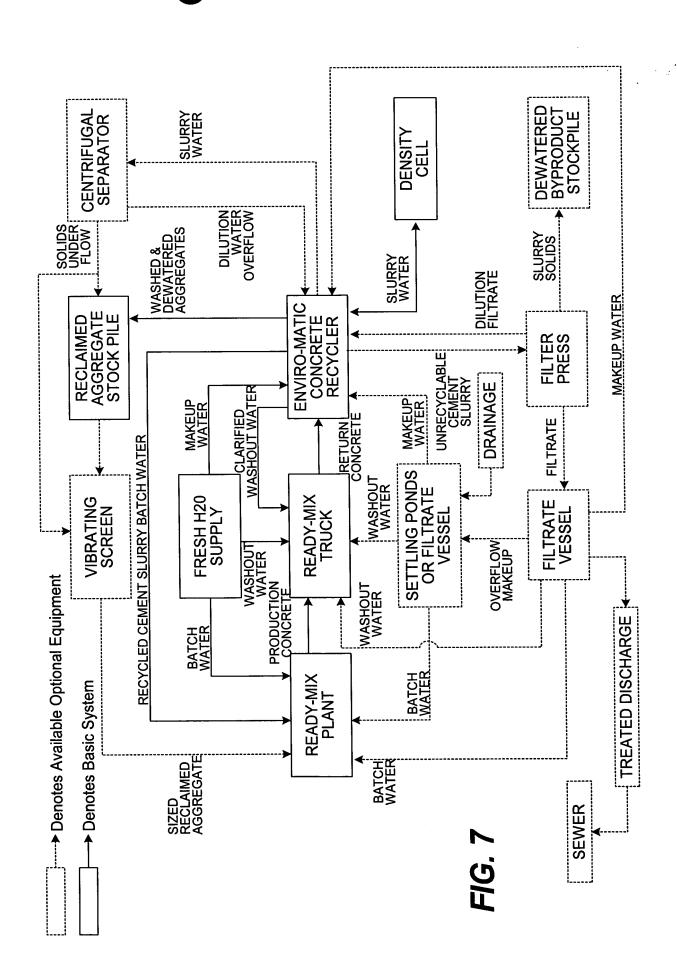
NO / YES

300

FIG. 3

(ENVIRO-MATIC) MODULES	FUNCTIONS	BENEFITS
Aggregates Reclaiming Module	Separates aggregates from slurry, washes, dewaters aggregates. Choice of models and capacities.	High quality construction by Stephens Mfg. produces long life, trouble-free performance.
Shaker Screen Module (optional)	Separates coarse and fine aggregates.	Reduces material handling costs.
Hydrocyclone Module (optional)	Strips sand fines (100+) from slurry on demand. Centrifugal flow device has no moving parts.	Maximizes recovery of fines. Reduces slurry density for better recycling or dewatering.
Slurry Vessel Module	Stores slurry for later recycling, dewatering or disposal.	Underground location saves space, permits dilution to control density. Agitators run on demand, use minimal power.
Density Cell Module	Measures specific gravity of slurry.	Ensures total quality control of concrete made with recycled slurry.

FIG. 4

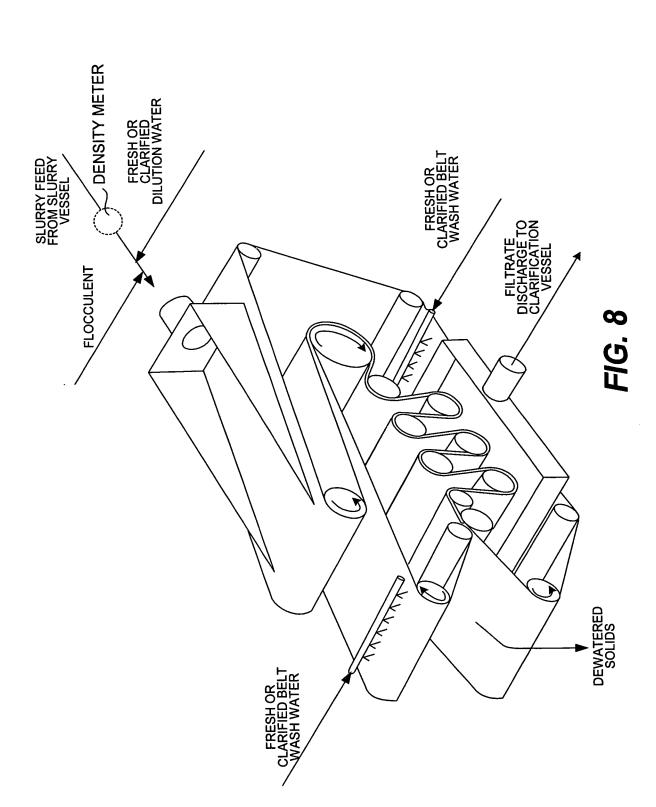|		
Solids Correction Programming Instruction Module	Powerful, proprietary software interfaces with batch plant control system, maintains yield, water/cement ratio and mix proportions regardless of slurry density	Protects quality of your product. Permits total recycling of slurry with no compromise in mix design. Works with all major computerized plant controls. Only the Enviro-Matic System has this vital quality control capability.
Cyclic Plate Filter Press Module (optional)	Simple, economical method of dewatering slurry when it cannot be recycled into new concrete. Range of sizes and capacities.	Completely eliminates any slurry problem. Supports extreme demands up to 150 cu. yd. per day of returned concrete. Solids are compressed into stable, solid cake byproduct easy to load, haul and dump as fill material. Filtrate water is clarified and reusable.
Continuous Belt Filter Press Module (optional)	Minimizes or eliminates need for extensive settling ponds.	
Drainage Containment Interface Module (optional)	All plant site storm drainage, fugitive water, filtrate, and make-up water can be prioritized by Enviro-Matic control.	Aids in compliance with regulations even with maximum production, adverse job conditions, high volumes of returned concrete and severe weather.

FIG. 5

FIG. 6

Denotes Available Optional Equipment, which vary with Site Requirements.

Denotes Basic System

CENTRIFUGAL SEPARATOR

SLURRY WATER

SLURRY WATER

DENSITY CELL

POLYMER SYSTEM

DEWATERED BYPRODUCT STOCKPILE

FRESH WATER SUPPLY

SOLIDS UNDER FLOW

WASHED & DEWATERED AGGREGATES

DILUTION WATER OVERFLOW

EXCESSIVE CEMENT SLURRY

DENSITY METER

SLURRY SOLIDS

BELT WASH

RECLAIMED AGGREGATE STOCK PILE

ENVIRO-MATIC CONCRETE RECYCLER

BELT PRESS

RECYCLED CEMENT SLURRY BATCH WATER

VIBRATING SCREEN

MAKEUP WATER

CLARIFIED WASHOUT WATER

RETURN CONCRETE

DRAINAGE

DILUTION WATER

MAKEUP WATER

FILTRATE

BELT WASH

FRESH H20 SUPPLY

READY-MIX TRUCK

WASHOUT WATER

CLARIFICATION VESSEL

WASHOUT WATER

BATCH WATER

PRODUCTION CONCRETE

READY-MIX PLANT

BATCH WATER

SIZED RECLAIMED AGGREGATE

TREATED DISCHARGE

SEWER

ROTCAER "OITAM-ORIVNE"

CENTRIFUGAL SEPARATOR

SLURRY WATER

SOLIDS UNDER FLOW

WASHED & DEWATERED AGGREGATES

DILUTION WATER OVERFLOW

DENSITY CELL

SLURRY WATER

DEWATERED BYPRODUCT STOCKPILE

SLURRY SOLIDS

MAKEUP WATER

RECLAIMED AGGREGATE STOCK PILE

ENVIRO-MATIC CONCRETE RECYCLER

DILUTION FILTRATE

FILTER PRESS

MAKEUP WATER

CLARIFIED WASHOUT WATER

UNRECYCLABLE CEMENT SLURRY

RECYCLED CEMENT SLURRY BATCH WATER

VIBRATING SCREEN

FRESH H20 SUPPLY

READY-MIX TRUCK

RETURN CONCRETE

MAKEUP WATER

DRAINAGE

FILTRATE

WASHOUT WATER

PRODUCTION CONCRETE

SETTLING PONDS OR FILTRATE VESSEL

FILTRATE VESSEL

BATCH WATER

WASHOUT WATER

OVERFLOW MAKEUP

READY-MIX PLANT

BATCH WATER

SIZED RECLAIMED AGGREGATE

BATCH WATER

TREATED DISCHARGE

SEWER

- - → Denotes Available Optional Equipment

──→ Denotes Basic System

FIG. 7

FIG. 8

FILTER PRESS DILUTION

VESSEL	GAL. CAP.		S.G.		PRESS SIZE	PUMP			COMP			CYCLE TIME-MIN			NUMBER CYCLES	FOB COST		
	START	STOP	START	STOP	SIZE	GPM	HP	PSI	CFM	HP	PSI	1ST	LAST	TOT.	CYCLES	PRESS	PUMP	COMP
EM20	5,000		1.25	1.03	·	·	·	·	·	·	·	·	·	·	·	·	·	·
EM40	10,000		1.25	1.03	·	·	·	·	·	·	·	·	·	·	·	·	·	·

FIG. 9A

FILTER PRESS FILTRATE

VESSEL	GALLON CAP.		S.G.	PRESS SIZE	PUMP			COMP			CYCLE TIME-MIN	NO. CYCLES	TOTAL TIME MIN	FOB COST		
	START	STOP		SIZE	GPM	HP	PSI	CFM	HP	PSI	MIN	CYCLES	MIN	PRESS	PUMP	COMP
EM20	5,000	500	1.25	·	·	·	·	·	·	·	·	·	·	·	·	·
EM40	10,000	1,000	1.25	·	·	·	·	·	·	·	·	·	·	·	·	·

FIG. 9B

BELT PRESS FILTRATE

WIDTH METERS	CAP.	SLURRY FEED		SLUDGE FEED	AVG. FEED TO E-M	INTER-MITTENT FEED TO E-M	FEED TO E-M	3 HR FEED TO E-M CY		90% EMPTY VESSEL-MIN		FOB COST BELT PRESS	COST/DAY POLYMER
	LB/HR	SG	GPM	LB/CY	CY/MIN	CY/MIN	CY/HR	EM20	EM40	EM20	EM40		
1.2	12,000	1.22	70	620	0.32	1	19.2	77	97	64	135	.	.
1.7	18,000	1.22	105	620	0.48	1	28.8	106	126	43	90	.	.
2.2	24,000	1.22	140	620	0.64	1	38.4	135	155	32	68	.	.

FIG. 10

CLOSED CIRCUIT MATERIAL UTILIZATION CHART FOR RETURNED CONCRETE

WATER SOURCE	CODE	CONCRETE RECYCLE MACHINE	PLANT BATCH WATER	BELT PRESS	FILTER PRESS	POND	HYDRO CYCLONE	DENSITY CELL
FRESH	F	X	X	X				X
CLARIFIED SLURRY	CS	X						
CLARIFIED POND	CP	X	X					
SLURRY	S		X	X	X		X	X
DRAINAGE	D					X		
FILTRATE	FT					X		
RETURN CONCRETE	RC	X						

FIG. 11